

**Montana Board of Oil and Gas Conservation
Environmental Assessment**

Operator: Citation Oil and Gas Corporation
Well Name/Number: BSU E734H
Location: SW SE Section 34 T32N R19E
County: Blaine, **MT;** **Field (or Wildcat)** Bowes

Air Quality

(possible concerns)

Long drilling time: No, 10 to 15 days drilling time.

Unusually deep drilling (high horsepower rig): No, single derrick drilling rig to drill to a vertical pilot hole to 3715'. Plugback and kickoff and drill a horizontal lateral 3548' TVD/ 6204'MD.

Possible H2S gas production: Slight H2S from the Bowes Sawtooth Formation.

In/near Class I air quality area: No Class I air quality area.

Air quality permit for flaring/venting (if productive): Yes, DEQ air quality permit required under 75-2-211.

Mitigation:

- ☒ Air quality permit (AQB review)
- ☐ Gas plants/pipelines available for sour gas
- ☐ Special equipment/procedures requirements
- ☐ Other: _____

Comments: No special concerns – using small rig to drill a vertical pilot hole to 3548'. Plugback and kickoff and drill a horizontal lateral 3548' TVD/ 6204'MD.

Water Quality

(possible concerns)

Salt/oil based mud: No, only freshwater, freshwater mud system to be used.

High water table: No high water table anticipated.

Surface drainage leads to live water: Yes, closest drainage is an unnamed ephemeral tributary drainage to Snake Creek, about 1/8 of a mile to the southwest from this location. Within this ephemeral drainage is a stock reservoir.

Water well contamination: No, closest water wells are 1 mile and further from this location, in any direction. Surface casing will be drilled to 1000' with freshwater and steel surface casing set and cemented to surface to protect ground waters.

Porous/permeable soils: No, silty -sandy bentonitic soils

Class I stream drainage: No Class I stream drainages.

Mitigation:

- ☐ Lined reserve pit
- ☒ Adequate surface casing
- ☐ Berms/dykes, re-routed drainage
- ☐ Closed mud system
- ☐ Off-site disposal of solids/liquids (in approved facility)
- ☐ Other: _____

Comments: 1000' of surface casing cemented to surface adequate to protect freshwater zones. Also, fresh water mud systems to be used.

Soils/Vegetation/Land Use

(possible concerns)

Stream crossings: No, stream crossings anticipated.

High erosion potential: No, small cut, up to 7.2' and small fill, up to 8.8', required.

Loss of soil productivity: No, location will be restored after drilling, if nonproductive. If productive unused portion of drillsite will be reclaimed.

Unusually large wellsite: No, large wellsite, 290'X320' location size required.

Damage to improvements: Slight, surface use cultivated land.

Conflict with existing land use/values: Slight, surface use cultivated land.

Mitigation:

☐ Avoid improvements (topographic tolerance)

☐ Exception location requested

☒ Stockpile topsoil

☐ Stream Crossing Permit (other agency review)

☒ Reclaim unused part of wellsite if productive

☐ Special construction methods to enhance reclamation

☒ Other: Requires DEQ General Permit for Storm Water Discharge Associated with Construction Activity, under ARM 17.30.1102(28).

Comments: Access will be off existing gravel county road, Lloyd Road and existing ranch trail. About 1/16 of a mile of new access will be built across cultivated land from the existing ranch trail into this location. Drilling fluids will be allowed to evaporate in the earthen pits. Cuttings will be allowed to dry in the earthen pits. Pits will be backfilled when dry. No special concerns.

Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: Closest residences are more than 1 mile in any direction from this location.

Possibility of H₂S: Slight

Size of rig/length of drilling time: Small drilling rig/short 10 to 15 days drilling time

Mitigation:

☒ Proper BOP equipment

☐ Topographic sound barriers

☐ H₂S contingency and/or evacuation plan

☐ Special equipment/procedures requirements

☐ Other: _____

Comments: Adequate surface casing and operational BOP should mitigate most safety concerns. Distance to nearest residence should mitigate noise concerns. No concerns

Wildlife/recreation

(possible concerns)

Proximity to sensitive wildlife areas (DFWP identified): None identified.

Proximity to recreation sites: None identified.

Creation of new access to wildlife habitat: None identified.

Conflict with game range/refuge management: None identified.

Threatened or endangered Species Threatened or endangered species identified in Blaine County are the Pallid Sturgeon and Black Footed Ferret. Candidate species is the Greater Sage Grouse and Sprague's Pipit. NH Tracker website lists four species of

concern, the Hoary Bat, Great Blue Herron, Ferruginous Hawk and the Greater Sage Grouse.

Mitigation:

- ☐ Avoidance (topographic tolerance/exception)
- ☐ Other agency review (DFWP, federal agencies, DSL)
- ☐ Screening/fencing of pits, drillsite
- ☐ Other: _____

Comments: Private surface cultivated field. Closest live water is about 1/8 of a mile to the southwest from this location. No concerns

Historical/Cultural/Paleontological

(possible concerns)

Proximity to known sites None identified.

Mitigation

- ☐ avoidance (topographic tolerance, location exception)
- ☐ other agency review (SHPO, DSL, federal agencies)
- ☐ Other: _____

Comments: On private cultivated land. No concerns.

Social/Economic

(possible concerns)

- ☐ Substantial effect on tax base
- ☐ Create demand for new governmental services
- ☐ Population increase or relocation

Comments: Well is a development well within an existing oil field, Bowes Sawtooth Field. No concerns.

Remarks or Special Concerns for this site

Well is a vertical pilot hole to 3715'. Plugback and kickoff and drill a horizontal lateral 3548' TVD/ 6204'MD into the Sawtooth Formation as a horizontal development well in the Bowes Oil Field.

Summary: Evaluation of Impacts and Cumulative effects

No long term impacts expected. Some short term impacts will occur.

I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC): /s/Steven Sasaki

(title:) Chief Field Inspector
Date: July 16, 2011

Other Persons Contacted:

Montana Bureau of Mines and Geology, GWIC website
(Name and Agency)
Water wells Blaine County, MT
(subject discussed)
July 16, 2011
(date)

US Fish and Wildlife, Region 6 website
(Name and Agency)
ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES
MONTANA COUNTIES, Blaine County
(subject discussed)

July 16, 2011
(date)

Montana Natural Heritage Program Website (FWP)
(Name and Agency)
Heritage State Rank= S1, S2, S3, T32N R19E
(subject discussed)

July 16, 2011
(date)

If location was inspected before permit approval:

Inspection date: _____

Inspector: _____

Others present during inspection: _____